



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/070,429	03/18/2002	Sakima Nobuhiro	218838US2PCT	1502
22850	7590	10/18/2005	EXAMINER	
OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			HOQUE, NASRIN	
			ART UNIT	PAPER NUMBER
			2631	

DATE MAILED: 10/18/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/070,429	Applicant(s) NOBUHIRO, SAKIMA	
	Examiner Nasrin Hoque	Art Unit 2631	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 August 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 March 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>02/03/2005 & 03/18/2002</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Acknowledgement

1. The preliminary amendments filed on 08/10/2005 has been entered and made of record. Claims 1-18 are pending in this application.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-3, 10-18 are rejected under 35 U.S.C., 103(a) as being unpatentable over Koprtieiners et al (US Patent No 5917865) in view of Schmutz et al. (US 2001/0048727).

➤ Regarding claim 1, Kopmeiners discloses a gain control unit (Kopmeiners: Fig 1, block 136, column 4, lines 19 - 30) which updates a variable gain amplifier (Kopmeiners: Fig 1, block 110, column 4, lines 10-16) in accordance with the output received from an Kopmeiners discloses that a mode 'selection unit" (Kopmeiners: Fig 1, blocks 132, 134 and 135, column 4, lines 53 - 55 and lines 48-50) selects a mode based on output received from analog to digital converter (Kopmeiners: Fig 1,

block 120, column 4, lines 19 - 30) and the selected mode information is received by a gain control unit (Kopmeiners: Fig 1, block 36, column 4, lines 19 - 30) which includes a peak sampling sub circuit that samples the peak values of the digital signal over variable period of time and a gain signal adjustment sub-circuit coupled to the peak sampling sub-circuit that operates in a selected one (Kopmeiners: column 2, lines 28 - 33); this functionally is equivalent of average peak value over variable period of time, but it does not explicitly specify the frame average value and slot average value wherein one frame includes a plurality of slots per claim.

However Schmutz et al. discloses a gain adjustment factor depends on time frame, which consists of plurality of time slots within a time frame (Schmutz : Figure 4, [0029]). Therefore it would have been obvious to one of ordinary skill in the art at the time of invention was made that gain adjustment factor can be determined from a time frame with plurality of time slots of a received signal to prevent undesired activates in the same frame to achieve desired output.

- Regarding claim 2, Kopmeiners discloses that a variable gain amplifier (Kopmeiners: Fig 1, block 110, column 4, lines 10-16) amplifies a received RF signal, and an analog to digital converter (Kopmeiners: Fig 1, block 120, column 4, lines 19-30) converts the amplified signal which is equivalent to be configured to amplify; Kopmeiners further explains a gain control unit (Fig 1, block 136, column 4, lines 18-29) which updates a variable gain amplifier (Kopmeiners: Fig

1, block 110, column 4, lines 10-16) in accordance with the output received from an analog to digital converter (Kopmeiners : Fig 1, block 120 , column 4, lines 19 - 30) and a mode selection unit (Kopmeiners: Fig 1, blocks 132, 134 and 135) selects a mode based on output received from an analog to digital converter (Kopmeiners: Fig 1, block 120, column 4, lines 19-30) and the selected mode information is received by a gain control unit which is functionality equivalent per claim 2. However Schmutz et al. discloses a gain adjustment factor depends on time frame which consists of plurality of time slots within a time frame (Schmutz: Figure 4, [0029]) as explained for claim 1.

➤ Regarding claim 3, Kopmeiners discloses that a variable gain amplifier (Kopmeiners: Fig 1, block 110, column 4, lines 10-16) splits a received RF signal into orthogonal components and amplifies the signal (Kopmeiners: column 4, lines 10-18) and an analog to digital converters (Kopmeiners: Fig 1, block 120, column 4, lines 19 - 30) convert the amplified signals into digital signals; a gain control unit (Kopmeiners: Fig 1, block 136, column 4, lines 28-29) updates a variable gain amplifier (Kopmeiners: Fig 1, block 110, column 4, lines 10-16) in accordance with the output received from an analog to digital converters (Kopmeiners: Fig 1, block 120 , column 4, lines 19 - 30) and a mode selection unit (Kopmeiners: Fig 1, blocks 132, 134 and 135, column 4, lines 53- 55 and lines 48-50) selects a mode based on output received from analog to digital

Converters the selected mode information is received by a gain control unit / amplifier. Schmutz et al. addresses all the functionalities per claim 3 as addressed for claims 1 and 2.

- Regarding claims 15 and 17 , Kopmeiners discloses a gain control unit (Kopmeiners: Fig 1, block 136, column 4, lines 19 - 30) updates a variable gain amplifier (Kopmeiners: Fig 1, block 110, column 4, lines 10-16) in accordance with the output received from an analog to digital converter (Kopmeiners: Fig 1, block 120, column 4, lines 19 - 30). For claim 17, although Kopmeiners discloses that a mode 'selection unit' it does not explicitly specify the frame average value and slot average value wherein one frame includes a plurality of slots per claim. However Schmutz et al. discloses a gain adjustment factor depends on time frame which consists of plurality of time slots within a time frame (Schmutz : Figure 4, [0029]) as explained for claim 1.
- Regarding claim 10 -14, 16 and 18 (which inherits the limitations of claims 1, 2, 3, 4, 15 and 17) Kopmeiners discloses that a mode can be selected based on output received from analog to digital converter (Kopmeiners: Fig 1, block 120, column 4, lines 19 - 30), Schmutz et al. discloses a gain adjustment factor depends on time frame which consists of plurality of time slots within a time frame (Schmutz : Figure 4, [0029]) and selection depends on threshold value which is equivalent to range selection (Schmutz : Figure 4, [0030]).

4. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Koprtieiners , Schmutz and further in view of Loke (US 200310027610). Kopmeiners and Schmutz discloses all the subject matters mentioned above (as applied for claims 1, 2 and 3) except the limitations of usage of two independent gain selection units for quadrature signals to provide feedback to amplifiers. Loke discloses that gain setting units (Loke: Fig 5 blocks 56, 52, 48, 58, and 50 explained in column 4, [0048] and [0046]) are providing feedback to VGAs separately. At the time of the invention, it would have been obvious to a person of ordinary skill in the art that usage of different gain setting module will improve the AGC performance by minimizing instability of desired signal and providing flexibility as well.

5. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kopmeiners , Schmutz and Loke (as applied for claim 4) and further in view of Seki et al. (Upatent 5,805,643). Kopmeiners and Loke disclose all the subject matters mentioned above as applied for claim 4 except the limitation of two antennas receiving a radio signal and delivering orthogonal signals (Seki: Fig 2, blocks 10 & 20, column 3, lines 59- 66 and outputs of blocks 41, 42, 43 and 44, column 3, lines 29 - 34). At the time of the invention, it would have been obvious to a person of ordinary skill in the art that usage of diversity receivers will improve the receiver performance for wireless communication by improving automatic gain control by determining the proper gain signal level.

6. Claims 6 - 9 (inherits the limitation of claims 2 - 5) are rejected under 35 U.S.C. 103(a) as being unpatentable over Kopmeiners, Schmutz (as applied to both claims 2-5) in view of Shimazaki (US Patent 5,812,025). Regarding claims 6-9, Kopmeiners, Schmutz discloses all the subject matters mentioned above (as applied to claims 2 and 3) except the (imitation of a processing unit, which receives orthogonal outputs from ADC. Shimazaki discloses a processing unit (Shimazaki: Fig 1, block 18, column 2, lines 42 - 43) receives the orthogonal outputs from ADC. At the time of the invention, it would have been obvious to a person of ordinary skill in the art that the output of ADC are furnished for different processing unit, e.g. demodulation etc. to extract desired output i.e. data, power etc. from the signal.

Conclusion

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the


shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nasrin Hoque whose telephone number is 571-272-5948. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, S. Chin can be reached on (571)272-3056. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Nasrin Hoque
Examiner
Art Unit 2631


STEPHEN CHIN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600